



OWNER'S MANUAL

Amplifier

MODEL

CO500.1

CO800.1



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INTRODUCTION

Thank you for your purchase of a Orion Cobalt power amplifier. Each Orion Cobalt amplifier is designed to be the leader in its class offering the most power, advanced features, and extreme ease of use. In high-end sound systems or high SPL systems, Orion Cobalt amplifiers will give you years of trouble-free performance.

- **CO500.1 - 250 Watt** - single-channel Class A/B amplifier with built-in fully variable low-pass crossover. Equipped with remote gain, the CO500.1 is capable of one-channel operation with a maximum power of 500 W into 2 ohm.
- **CO800.1 - 400 Watt** - single-channel Class A/B amplifier with built-in fully variable low-pass crossover. Equipped with optional remote gain, the CO800.1 is capable of one-channel operation with a maximum power of 800 Watts into 2 ohm.

The installation of all Orion Cobalt components will determine the overall performance result. Improper installation will not only limit the performance of your Orion Cobalt system but also potentially compromise the reliability of this amplifier. To ensure proper sonic results and component reliability, please refer to your authorized dealer for installation assistance or advice. If you decide to perform the installation yourself, be sure to read the entire manual before beginning the installation.

WHAT'S IN THE BOX

- (1) Amplifier
- (2) Spare fuse(s)
- (4) #8 self-tapping black Phillips head pan head screws
- (1) Amplifier installation and operation manual
- (1) RGC-2 Remote bass control

PRACTICE SAFE SOUND™

Continuous exposure to sound pressure levels over 100dB may cause permanent hearing loss. High power automotive sound systems can generate sound pressure levels in excess of 130dB. When playing your system at high levels, please use hearing protection and avoid long term exposure.

Model: _____

Serial Number: _____

Date of Purchase: _____

TOOLS OF THE TRADE

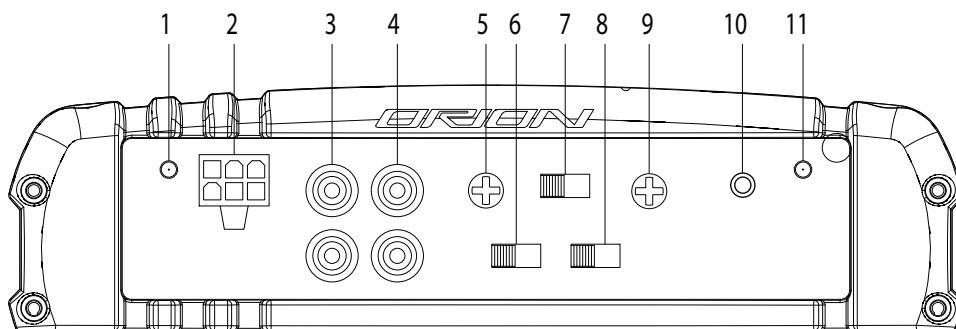
Listed next are the majority of the tools required to perform an installation. Having the proper tools will make the installation that much easier. Some of these tools are necessities; some will just make the job easier.

- Allen Wrenches (2mm, 3mm & 4mm)
- Electric drill with assorted drill bits
- Heat shrink tubing
- Phillips and flat blade screw drivers
- Pliers (standard and needle nose)
- RTA (real time analyzer)
- Soldering iron and solder
- Utility knife
- Wire brush or sandpaper for chassis grounding
- Reference CD with 1 kHz Sine Wave at 0dB level (all bits high)
- DMM or VOM
- Grommets
- Marking pen
- Nylon tie straps
- Wire crimper
- Wire cutters
- Wire strippers

END PANEL LAYOUTS

Input Plate

Figure 1
Figura 1
Abbildung 1

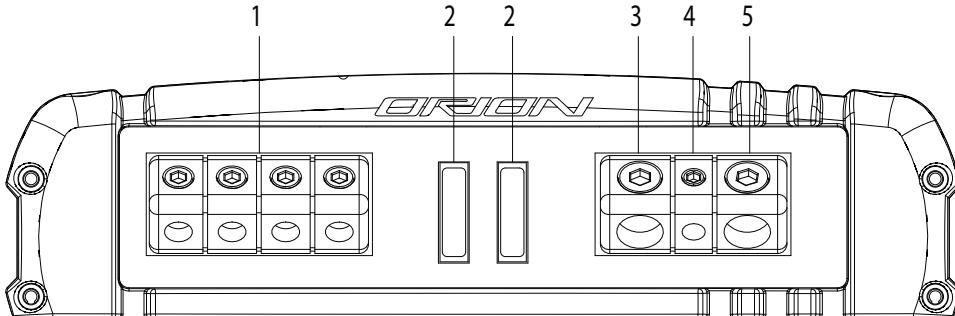


1. **Power LED** - When lit indicates that the amplifier is on.
2. **High Level Input** - Connect speaker output from factory radio to amplifier, will auto sense signal from radio and turn amplifier on when needed, turn off after 1 minute without signal.
3. **RCA Outputs** - provides a full range signal for easy connection to additional amplifiers.
4. **RCA Inputs** - Accepts RCA input from a source unit, preamplifier, or equalizer.
5. **Gain Control** - Continuously adjusts from 150mV to 8V input to obtain full power output.
6. **Phase Control Switch** - Allows for adjustment of phase and makes bridging amplifiers possible.
7. **LPF, FULL, Switch** - Selects either Lo-pass crossover or full range crossover.
8. **Bass Boost Switch** - Adjusts bass gain in three steps (0dB, 6dB, & 12dB).

9. **Lo-Pass Crossover Frequency Control** - adjusts the frequency of the crossover.
10. **Remote Bass Gain Jack** - connects RGC-2 (remote bass control).
11. **Status LED** - Will indicate any fault condition in amplifier, also lights briefly during muting phase of turn-on.

Output Plate

Figure 2
Figura 2
Abbildung 2



1. **Speaker Connections** - accepts up to 12 AWG speaker wire.
2. **2 ATC Fuses** - protects the amplifier from over current situations.
3. **Power Connections** - accepts up to 4 AWG power cables.
4. **REM Remote Turn-on Input** - turns on/off the amplifier when fed Switched 9 - 15 V+.
5. **Ground Connection** - accepts up to 4 AWG ground cable.

CEA SPECIFICATIONS

CO500.1



Power Output: 175 Watts RMS x 1 at 4 ohms and < 1% THD+N
 Signal to Noise Ratio: -80 dBA (reference 1 Watt into 4 ohms)
 Additional Power: 250 Watts RMS x 1 at 2 ohms and < 1% THD+N

CO800.1



Power Output: 300 Watts RMS x 1 at 4 ohms and < 1% THD+N
 Signal to Noise Ratio: -75 dBA (reference 1 Watt into 4 ohms)
 Additional Power: 400 Watts RMS x 1 at 2 ohms and < 1% THD+N

HIGH LEVEL HARNESES

Do not connect the high level input connections to power, signal, or chassis ground as damage to the head-unit outputs may result. The high-level inputs are designed to work with either grounded or BTL speaker level outputs (found on most head units).

HIGH LEVEL CONNECTIONS

WIRE COLOR	INPUT CONNECTION
Black	Ground
White/Black	- Left channel
White	+ Left channel
Gray/Black	- Right channel
Gray	+ Right channel

AMPLIFIER SETTINGS

Signal Input and Output Configurations

The input section of the amplifier consists of a phase switch that sets the output configuration, gain controls, and RCA inputs. The input section makes it easy to adapt this amplifier to most system configurations.

Input Gain

The Orion Cobalt CO500.1 and CO800.1 amplifiers have level adjustments to allow for easy integration with any source unit. The input sensitivity can be adjusted from 200mV to 5V. Refer to *Testing the System* and *Adjusting the Sound of the System* sections of this guide for detailed instructions on setting the gain.

Phase Switches

- **0°** - leaves output unaffected. The output signal is in phase with the input signal.
- **180°** - inverts the output. The channel is 180° output of phase. This configuration is useful for inverting the phase of subwoofers to improve staging in a vehicle. This is also used when bridging two amplifiers into one speaker.

Auxiliary Output Configurations

The auxiliary outputs on Orion Cobalt amplifiers offer easy, unlimited system expansion. Routing signal from a source unit, pre-amplifier, or equalizer is a matter of connecting RCAs to the RCA Inputs and the RCA outputs to your next Orion Cobalt amplifier in the signal chain. The signal passes through a buffer stage so that several amplifiers can be daisy chained without signal loss or overloading of the source unit. This maximizes the signal output and minimizes the potential for system noise.

Internal Crossover

The crossover section of the Orion Cobalt CO500.1 and CO800.1 amplifiers is continuously variable and extremely flexible.

When using Orion Cobalt loudspeakers, minor deviations from the recommended frequency ranges can provide superior results depending on your speaker locations and your vehicle acoustics. Setting crossover frequencies higher than recommended will not cause damage and may provide superior sonic results depending on your system's performance goals. Refer to your

loudspeaker owner's manual for assistance in choosing the proper crossover frequencies for your system.

Low-Pass Crossover

The low-pass crossover is active with a 2nd order (12dB per octave) slope. The low-pass crossover is continuously variable from 50Hz to 500Hz.

Remote Bass Operation

The remote bass port provides easy remote access to the internal bass gain structure of the power amplifier. The bass gain is centered at 44Hz. The RGC-2 plugs into the amplifier via the 1/8" mini jack plug. The RGC-2 can be installed in the front of the vehicle to control the amplifier bass gain level. The RGC-2 can be used as a bass level control when used on an amplifier dedicated to subwoofers.

AMPLIFIER WIRING

Power Connections for the Orion Cobalt CO500.1 and CO800.1

- Orion Cobalt CO500.1 Fuse Size: 2 x 20 AMP ATC / CO800.1 Fuse Size: 2 x 30 AMP ATC
- Power connections accept up to 4 AWG wire.
- 4 AWG power and ground wire recommended for optimal performance.
- Connect 12V+ to the battery through fuse holder. This connection provides +12V main power to the amplifier.
- Power wire must be fused no more than 18" from battery.
- Ground amplifier to a good chassis ground as close as possible to the amplifier.
- Connect REM terminal to remote turn-on lead from source unit. This connection provides +12V power to turn-on the amplifier.
- Add extra ground wire between the negative terminal of the battery and the chassis.

Speaker Wiring Diagram CO500.1/CO800.1

The Orion Cobalt CO500.1 and CO800.1 amplifiers offer two positive and two negative output terminals for ease of connecting the speakers to the amplifier. Since these are mono amplifiers, the speaker connectors are paralleled internally. Each amplifier is stable to 2Ω.

Single 2Ω speaker or 2 ea. of 4Ω speakers

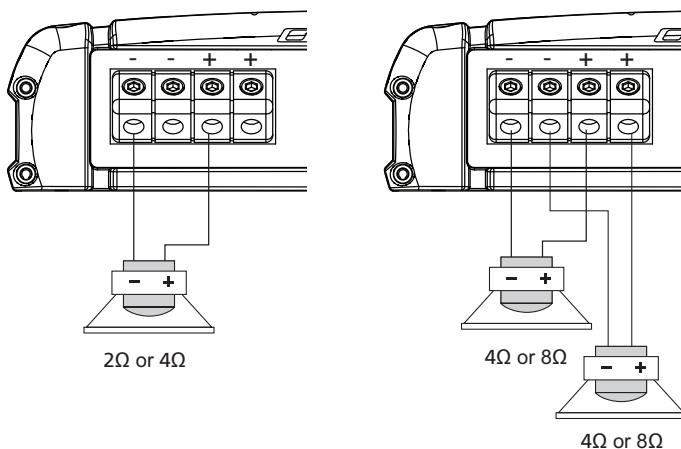


Figure 3
Figura 3
Abbildung 3

Bridging

For bridging into a single speaker load, the Orion Cobalt CO500.1 and CO800.1 have the ability to be bridged with another amplifier of the same model. To do this you must set the PHASE switch on the (slave) amp, move the phase switch from 0 to 180, exactly opposite of the master amp. Refer to the *Phase Switch* section of this guide.

Be sure to set all adjustment on both amplifiers exactly the same except for the phase switch. The phase switch on the master amplifier should be 0 and the slave amplifier should be 180. For the speaker connections, connect the positive (+) speaker lead from the speaker to the positive (+) speaker terminal of the master amplifier. On the negative (-) speaker connection, take the negative (-) speaker terminal of the master amplifier and connect it directly to the negative (-) speaker terminal of the (slave) amplifier. The remaining positive (+) speaker terminal of the (slave) amplifier must be connected to the negative (-) speaker lead from the speaker. The impedance of the speaker must not be less than 4 ohms

NOTE: For best results, connect both negative speaker terminals on the master amp to both negative terminals on the slave amp using at least 12 AWG cable.

2 ea. amplifiers bridged to 1 ea. 4Ω or 8Ω speaker

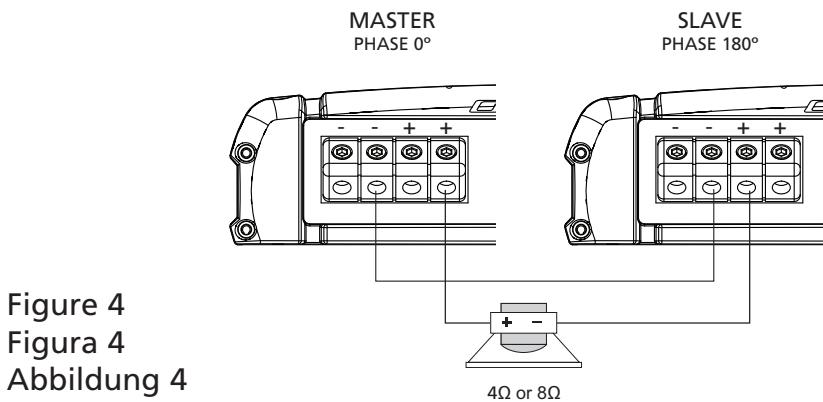


Figure 4
Figura 4
Abbildung 4

AMPLIFIER INSTALLATION

Choosing Mounting Locations

The location of your amplifier will depend on several important issues. Due to the low profile size of the Orion Cobalt amplifiers, there are many possible installation locations that will yield satisfactory amplifier performance. Always mount the amplifier in a place that protects the amplifier from the elements. In addition, mount the amplifier on a stable, flat surface.

NOTE: Mounting amplifiers upside down is not recommended and may cause premature thermal shutdown.

WARNING! Do not mount any amplifier in the engine compartment. Amplifiers are not designed to endure the harsh environment of the exterior elements.

Passenger Compartment

If you are going to mount the amplifier in the passenger compartment, make sure you have adequate room for ventilation. The amplifiers have been designed to make under-seat mounting possible. When mounting your amplifier under a seat or similar area, keep a minimum of 1" of clearance around the amplifier for adequate cooling.

Trunk Compartment

Mounting your amplifier in the trunk provides excellent performance as long as you do not restrict the airflow around the heatsink of the amplifier. For optimal results, mount the amplifier with as much clearance as possible. This type of mounting will yield the best cooling due to the convection effect of the amplifier chassis.

General Precautions and Installation Tips

WARNING! Be careful not to cut or drill into gas tanks, fuel lines, brake lines, hydraulic lines, vacuum lines, or electrical wiring when working on your vehicle.

Disconnect the vehicle's ground wire at the battery before making or breaking connections to the audio system's power supply terminals.

Do not use this amplifier unmounted. Failing to securely mount the amplifier can result in damage or injury, particularly in the event of an accident. An unmounted amplifier becomes a dangerous projectile in the event of a crash. Never mount the amplifier where it might get wet. Mount the amplifier so the wire connections will not be pulled. Route the wires where they will not be scraped, pinched or damaged in any fashion.

The +12V power supply wire must be fused as close as possible to the battery terminal, ideally within 18". Use the recommended fuse size or circuit breaker listed in the *Power Connections* section of this manual.

If you need to replace the fuse plugged into the side of the amplifier, replace the fuse with the same size ATC / MAXI type fuse that came with the amplifier. If you are not sure as to the correct value, refer to the *Power Connections* section of this manual for details. Using a higher current fuse may result in damage to the amplifier that is not covered under warranty.

NOTE: Make sure all the equipment in the system is turned off when making or breaking connections to the input RCAs or speaker terminals. Turn on the system and slowly turn up the volume control only after double checking all wire connections.

Power for systems with a single amplifier can be supplied by most automotive electrical systems. Systems with multiple amplifiers may require a higher capacity battery, alternator or the use of a storage capacitor. We strongly recommend the use of a Directed Audio Essentials power capacitor with an extra battery in larger stereo systems.

Orion Cobalt amplifiers generate a certain amount of heat as part of normal operation. Be sure the area around the amplifier is unobstructed to allow adequate air circulation. Remember, beach blankets, last week's laundry, school books and homework papers located on top of the amplifier do not improve air flow and may become damaged.

Step By Step Installation

- Step 1 Determine the location for the amplifier. Refer to the *Choosing Mounting Locations* section of this guide for detailed information.
- Step 2 Decide on the system configuration for your amplifier. For system suggestions, refer to the *Speaker Connections* section of this guide.
- Step 3 Run all the wires from the amplifier location to the speakers, source unit, and battery. Do not connect the battery at this time. Be sure to run RCAs and power and speaker wires away from factory electrical wires and system as they pose a great potential for induced system noise.
- Step 4 Pre-drill amplifier mounting holes. Be sure to "think before you drill". Gas tanks, fuel lines, and other obstructions have a nasty way of hiding themselves. For best

results use a marking pen to mark the mounting holes and pre-drill these holes with a standard 1/8" drill bit.

- Step 5 Mount the amplifier. Make sure the amplifier is mounted on a flat surface. If this is not possible, do not over tighten the screws so that the chassis of the amplifier is twisted or bent.
- Step 6 Turn the vehicle's key switch to the off position.
- Step 7 Disconnect the vehicle's battery ground terminal.
- Step 8 Connect power wires to the amplifier (ground first, then 12 V(+) and REM).
- Step 9 Connect the RCA and speaker wires to the amplifier. Check the quality of your speakers and signal connections. This will determine the ultimate performance of your Orion Cobalt amplifier. Refer to the *Signal Input and Output Level Controls* and *Speaker Connections* sections of this guide for correct wiring instructions.
- Step 10 Reconnect the ground terminal to the battery after power, speaker, and RCA connections are completed.
- Step 11 Set crossovers. Refer to the *Internal Crossover Configuration* section of this manual for detailed instructions.
- Step 12 Once satisfied that all connections and settings are correct, install the fuse located near the vehicle's battery and proceed to the *Testing the System* section of this manual.

WARNING! Never exceed the recommended fuse size of this amplifier. Failure to do so will result in the voiding of your warranty and possible damage to the amplifier.

SET UP AND TROUBLESHOOTING

Testing the System

After you have completed the installation, you need to test the system. This will help ensure years of trouble-free operation. Please refer to the listed steps below when testing the sound of your Orion Cobalt system.

- Step 1 Check all the wiring connections to be sure they are correct and secure.
- Step 2 Turn the signal source volume control all the way down. Set any tone controls to their flat or defeated positions. This includes the loudness control.
- Step 3 Turn the level controls of the amplifier to their minimum positions.
- Step 4 Turn the source unit on. Check to see if the power LED located on the connection side of the amplifier is on. If not, please refer to the *Power Connections* and the *Troubleshooting Tips* sections of this manual for instructions.
- Step 5 If using an aftermarket source unit, turn the level controls of the amplifier about one quarter of a turn. Slowly increase the volume level of the source unit to so that you can hear the output of the system. If no sound is heard or if the output is distorted, turn the system off immediately. Refer to the *Power Connections* and the *Troubleshooting Tips* sections of this manual to solve your installation problems.
- Step 6 Check to make sure the output for each channel is correct. If the active crossovers are used, check to make sure that each output is correct from the amplifier. When using active crossovers on midrange and tweeters, do not use crossover frequencies lower than recommended. If the system is not configured properly, refer to the *Internal Crossover Configuration* section of this manual and take corrective action.
- Step 7 If the output is clear and undistorted, continue to the *Adjusting the Sound of the*

Adjusting the Sound of the System

Once you have checked the system's operation, adjust the sound of the system. Adjusting the sound of the system is accomplished by setting the level controls and adjusting the internal crossovers.

- Step 1 Turn the signal source volume control all the way down. Set any tone controls to their flat or defeated positions. This includes the loudness control.
- Step 2 Turn the level controls of the amplifier to their minimum positions.
- Step 3 Choose music with high dynamic content that you like, with which you are familiar, and will be used most often in the system.
- Step 4 Turn the source unit's volume control up to its highest undistorted output level. If you lack test equipment, this point occurs between 3/4 to full volume depending on the quality of your source unit. Listen for any audible distortion. If any distortion is audible, reduce the volume of the source unit until you have an undistorted output. Leave the volume control at this position during your system tuning.
- Step 5 While listening to your chosen dynamic music, turn up the level control corresponding to the midrange output until you hear slight distortion and turn the level control back slightly for an undistorted output. Depending on your system, the midrange and tweeter output may be on the same output channels.
- Step 6 Turn up the level control corresponding to the tweeter output until you hear slight distortion and turn back the level control slightly for an undistorted output. Depending on your system the midrange and tweeter output may be on the same output channels.
- Step 7 Fine-tune the output level between midrange and tweeters. Refer to the *Internal Crossover Configuration* section of this manual for detailed instructions.
- Step 8 Repeat Steps 5-7 for the rear speakers. If you do not have rear speakers continue to Step 10.
- Step 9 Set levels between the front and rear midrange and tweeters for optimum front/rear balance.
- Step 10 Turn up the level control corresponding to the woofer output until you hear slight distortion and turn back the level control slightly for an undistorted output.
- Step 11 Fine-tune the output level between satellite speakers and the woofers. Refer to the *Internal Crossover Configuration* section of this manual for detailed instructions. If using an RGC-2, adjust the level to the bass output of the woofer to match the sonic requirements of the system.
- Step 12 Enjoy your awesome Orion Cobalt sound system.

Troubleshooting Tips

Symptom	Probable Cause	Action To Take
No output		
	Low or no remote turn-on	Check remote turn-on voltage at voltage amplifier and repair as needed.
	Fuse blown	Check power wire's integrity and check for speaker shorts. Fix as needed and replace fuse.
	Power wires not connected	Check power wire and ground connections and repair or replace as needed.
	Audio input not connected.	Check RCA connections and repair or replace as needed.
	Speaker wires not connected	Check speaker wires and repair or replace as needed.
	Speaker are blown	Check system with known working speaker and repair or replace speakers as needed.
Audio cycles on and off		
	Thermal protection engages when amplifier heat sink temperature exceeds 50° C (122° F)	Make sure there is proper ventilation for amplifier and improve ventilation as needed.
	Loose or poor audio input	Check RCA connections and repair or replace as needed.
	Loose power connections	Check power wires and ground connections and repair or replace as needed.
Distorted output		
	Amplifier level sensitivity set too high exceeding maximum capability of amplifier	Readjust gain. Refer to the <i>Adjusting the Sound of the System</i> section of this manual for detailed instructions.
	Impedance load to amplifier too low	Check speaker impedance load, if below 2Ω, rewire the speakers to achieve higher impedance.
	Shorted speaker wires	Check speaker wires and repair or replace as needed.
	Speaker not connected to amplifier properly.	Check speaker wires and repair or replace as needed. Refer to the <i>Speaker Connections</i> section of this manual for detailed instructions
	Internal crossover not set properly for speakers	Readjust crossovers. Refer to the <i>Internal Crossover Configuration</i> section of this manual for detailed instructions.
	Speakers are blown	Check system with known working speakers and fix or replace as needed.
Poor bass response		
	Speakers wired with wrong polarity causing cancellation at low frequencies.	Check speaker polarity and fix as needed.

Symptom	Probable Cause	Action To Take
Poor bass response		
	Crossover set incorrectly	Reset crossovers. Refer to the <i>Internal Crossover Configuration</i> section of this manual for detailed instructions.
	Impedance load at amplifier is too low.	Check speaker impedance load if below 2Ω , rewire speakers to achieve higher impedance
Battery fuse blowing		
	Short in power wire or incorrect wiring.	Check power wires and ground connections and repair or replace as needed.
	Fuse used is smaller than recommended.	Replace with proper fuse size.
	Actual current exceeds fuse rating.	Check speaker impedance load if below 2Ω , rewire speakers to achieve higher impedance
Amplifier fuse blowing		
	Fuse used is smaller than recommended.	Replace with proper fuse size.
	Impedance load at amplifier is too low.	Check speaker impedance load if below 2Ω , rewire speakers to achieve higher impedance
	Speaker is blown with shorted outputs	Check system with known working speakers and fix or replace as needed.
	Actual current exceeds fuse rating	Check speaker impedance load if below 2Ω , rewire speakers to achieve higher impedance

SPECIFICATIONS

Amplifier Section	CO500.1	CO800.1
Power Output in Watts RMS, 4 Ohms	175 x 1	300 x 1
Power Output in Watts RMS, 2 Ohms	250 x 1	400 x1
Externally Bridgeable	yes	yes
Remote Gain Function	yes	yes
Distortion at Rated Power	< 0.9% THD+N	< 0.9% THD+N
Frequency Response	20Hz to 30kHz +0, -1dB	20Hz to 30kHz +0, -1dB
Linear Bandwidth	20Hz to 20kHz ±3dB	20Hz to 20kHz ±3dB
Damping Factor	> 150	> 150
Input Sensitivity	rms	rms
Input Impedance	80kΩ	80kΩ
Fuse Type	(2) 20 Amp ATC	(2) 30 Amp ATC
Dimensions	11.4" x 8.1" x 2.1"	13.4" x 8.1" x 2.1"
Weight	6.3 lbs.	7.3 lbs.
Crossover Section		
Low Pass Crossover	Continuously variable/ 2nd Order	Continuously variable/ 2nd Order
Low Pass Frequency Range	50Hz to 500Hz	50Hz to 500Hz

Continuous 2Ω load 20Hz to 200Hz, < 0.1% THD, with input voltage at 13.8VDC.

NOTES

WARRANTY



LIMITED ONE-YEAR CONSUMER WARRANTY/*LIMITED TWO-YEAR CONSUMER WARRANTY FOR AUTHORIZED DIRECTED DEALER PURCHASE & INSTALLATION

Directed Electronics (herein "Directed") promises to the original purchaser of the subwoofer or amplifier, as applicable (herein "Unit" or "Product"), to repair or replace with a new or refurbished Unit (at Directed's sole and absolute discretion) should the Unit prove to be defective in workmanship or material under normal use, for a period of *two-years from the date of purchase from the authorized Directed dealer PROVIDED the Unit was purchased and installed by an authorized Directed dealer. During this *two-year period, there will be no charge for the repair or replacement PROVIDED the Unit is returned to Directed (DO NOT RETURN THE ENTIRE ENCLOSURE. PLEASE RETURN THE WARRANTIED UNIT ONLY.), shipping pre-paid, along with the required proof of installation, the bill of sale or other dated proof of purchase, and the consumer's contact information. If the Unit is installed by anyone other than an authorized Directed dealer, the warranty period will be one-year from the date of purchase. This warranty is non-transferable and does not apply to any Unit that has been modified or used in a manner contrary to its intended purpose, and does not cover damage to the Unit caused by installation or removal of the Unit. During this one-year period, there will be no charge for the repair or replacement PROVIDED the Unit is returned to Directed, shipping pre-paid, along with the bill of sale or other dated proof of purchase and the consumer's contact information. This warranty is void if the product has been damaged by accident or unreasonable use, neglect, improper service or other causes not arising out of defects in materials or construction. This warranty does not cover the elimination of externally generated static or noise, or the correction of antenna problems or weak reception, damage to speakers, accessories, electrical systems, cosmetic damage or damage due to negligence, misuse, failure to follow operating instructions, accidental spills or customer applied cleaners, damage due to environmental causes such as floods, airborne fallout, chemicals, salt, hail, lightning or extreme temperatures, damage due to accidents, road hazards, fire, theft, loss or vandalism, damage due to improper connection to equipment of another manufacturer, modification of existing equipment, or Product which has been opened or tampered for any reason. Units which are found to be damaged by abuse resulting in thermally damaged voice coils are not covered by this warranty but may be replaced at the absolute and sole discretion of Directed. Unit must be returned to Directed (DO NOT RETURN THE ENTIRE ENCLOSURE. THE UNIT ENCLOSURE IS COVERED BY A SEPARATE 90-DAY LIMITED CONSUMER WARRANTY. PLEASE ONLY RETURN THE WARRANTIED UNIT UNLESS A WARRANTY CLAIM IS BEING MADE FOR THE ENCLOSURE.), postage pre-paid, with bill of sale or other dated proof of purchase bearing the following information: consumer's name, telephone number, and address, authorized dealer's name and address, and product description. Unit must be returned to the following address: ATTN: WARRANTY DEPARTMENT, Directed Electronics , 1 Viper Way, Vista, CA 92081. Note: This warranty does not cover labor costs for the removal and/or reinstallation of the Unit. IN ORDER FOR THE TWO-YEAR WARRANTY TO BE VALID, YOUR UNIT MUST BE SHIPPED WITH PROOF OF INSTALLATION BY AN AUTHORIZED DIRECTED DEALER. ALL UNITS RECEIVED BY DIRECTED FOR WARRANTY REPAIR WITHOUT PROOF OF DIRECTED DEALER INSTALLATION AND PURCHASE WILL BE COVERED BY THE LIMITED 1 YEAR WARRANTY.

BY PURCHASING THIS PRODUCT, ALL WARRANTIES INCLUDING BUT NOT LIMITED TO EXPRESS WARRANTY, IMPLIED WARRANTY, WARRANTY OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, AND WARRANTY OF NON-INFRINGEMENT OF INTELLECTUAL PROPERTY ARE EXPRESSLY EXCLUDED TO THE MAXIMUM EXTENT ALLOWED BY LAW, AND DIRECTED NEITHER ASSUMES NOR AUTHORIZES ANY PERSON TO ASSUME FOR IT ANY LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT. DIRECTED HAS ABSOLUTELY NO LIABILITY FOR ANY AND ALL ACTS OF THIRD PARTIES INCLUDING ITS AUTHORIZED DEALERS OR INSTALLERS. IN NO EVENT WILL DIRECTED BE LIABLE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF PROFITS). BY PURCHASING THIS PRODUCT, THE CONSUMER AGREES AND CONSENTS THAT ALL DISPUTES BETWEEN THE CONSUMER AND DIRECTED SHALL BE RESOLVED IN ACCORDANCE WITH CALIFORNIA LAWS IN SAN DIEGO COUNTY, CALIFORNIA. This warranty is only valid for sale of Product within the United States of America. Product sold outside of the United States of America is sold "AS-IS," and shall have NO WARRANTY, express or implied. Some states do not allow limitation on how long an implied warranty lasts. In such states, the limitation or exclusions of this Limited Warranty may not apply. Some states do not allow the exclusion or limitation of incidental or consequential damages. In such states, the exclusion or limitation of this Limited Warranty may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights which vary from state to state.

920-0033 04-07

For more information on Orion or WCC products please visit www.orioncaraudio.com



Directed Electronics is an ISO 9001 registered company.

Directed Electronics is committed to delivering world class quality products and services that excite and delight our customers.

distributed by
Directed[®]
ELECTRONICS
Vista, CA 92081
DIRECTED.COM

1. Mr. 2. Mrs. 3. Ms. 4. Miss

First Name

Initial Last Name

IMPORTANT! IMPORTANT!
Please complete and return within the next 10 days
or register online at www.prodregister.com/directed

X F A 0 1 - 0 1

Street

Apt. No.

City

State

ZIP Code

E-mail

2. Your date of birth: / /

Month Year

3. Marital status: 1. Married

2. Single

4. Date of purchase:

/ /

Month Day Year

5. Model number:

6. Name of store where purchased:

7. Price paid (excluding sales tax): \$.00

8. Which Directed Electronics brand did you purchase?

- 1. Directed Audio 4. Xtreme
- 2. Orion 5. a/d/s/
- 3. Precision Power 6. Directed Video

9. What product did you purchase?

- 1. Subwoofer 5. Complete Video System
- 2. Speaker 6. Overhead Monitor
- 3. Amplifier 7. Headrest Monitor
- 4. Signal Processor 8. DVD Player

10. What type of vehicle will this product be used in?

- 1. Car 6. Motorcycle
- 2. Truck 7. Boat
- 3. SUV 8. Motor home
- 4. Van 9. Other
- 5. MiniVan

11. In what vehicle will this product be used?

Make of vehicle:

Model name:

VIN #:

Year:

- A. Bought New
- B. Bought Used
- C. Leased
- D. Leased Used

12. How did you first become aware of this product? (check one)

- 01. Local newspaper 07. Radio commercial
- 02. Yellow pages 08. Salesperson's recommendation
- 03. Magazine advertisement 09. Motorsports sponsorship
- 04. TV commercial 10. Internet
- 05. Magazine article/review 11. Other
- 06. Friend/Relative's recommendation

13. What factors most influenced the purchase? (check up to three)

- 01. Directed's reputation 11. Style/Design/Color
- 02. Brand's reputation 12. Dealer proximity
- 03. Experience with Directed product 13. Friend's recommendation
- 04. Experience with dealer 14. Salesperson
- 05. Value/Price recommendation
- 06. Warranty 15. Ease of installation
- 07. Special features 16. Compatibility with vehicle
- 08. Quality/Durability
- 09. Sound board/in-vehicle demo 17. Other
- 10. Rebate/Promotion only

14. What benefits of this product most influenced your decision to purchase? (check up to three)

- 01. Improved sound quality 11. Increase vehicle value
- 02. Improved loudness/SPL 12. Functionality
- 03. Improved performance 13. Warranty
- 04. Ability to watch movie in vehicle
- 05. Used by autsound competitors
- 06. Compatibility with vehicle
- 07. Ease of installation
- 08. Style/Design/Color
- 09. Special Features
- 10. Quality/Durability
- 11. Immediate availability
- 12. Friend's recommendation
- 13. Salesperson recommendation
- 14. Price/Value
- 15. Rebate/Promotion
- 16. Dealer proximity
- 17. Other
- 18. Other Directed brands
- 19. Other
- 20. Only

15. What other brands did you seriously consider before making this purchase?

- 01. None, only Directed
- 02. Other Directed
- 03. Audiovox
- 04. MTX
- 05. MB Quart
- 06. Rockford Fosgate
- 07. JL Audio
- 08. Rosen
- 09. Polk Audio
- 10. Audiobahn
- 11. Memphis
- 12. Kicker
- 13. Alpine
- 14. Sony
- 15. Kenwood
- 16. Pioneer
- 17. Clarion
- 18. Other

16. Which of the following publications do you read regularly (three out of the last four issues)? (check all that apply)

- 01. Car and Driver
- 02. Car Audio & Electronics
- 03. Car Sound and Performance
- 04. Hot Boat
- 05. Import Tuner
- 06. Import Racer
- 07. Lowrider
- 08. Mini Truckin'
- 09. Motor Trend
- 10. Performance Auto & Sound
- 11. Road & Track
- 12. Rolling Stone
- 13. SKATEboarding
- 14. Ski
- 15. Snowboard
- 16. Spin
- 17. Sport Compact Car
- 18. Sport Truck
- 19. Street Trucks
- 20. Super Street
- 21. Truckin'
- 22. Working Woman
- 23. Other

17. Not including yourself, what is the GENDER and AGE (in years) of children and other adults living in your household?

- 01. No one else in household
- 02. Child under 1 year

Male Female Age Male Female Age

1. 2. yrs. 1. 2. yrs.

1. 2. yrs. 1. 2. yrs.

18. Occupation: (check all that apply)

- | | | |
|----------------------------------------|--------------------------|-----------------------------|
| Professional/Technical..... | <input type="checkbox"/> | 1. <input type="checkbox"/> |
| Upper Management/Executive | <input type="checkbox"/> | 2. <input type="checkbox"/> |
| Middle Management | <input type="checkbox"/> | 3. <input type="checkbox"/> |
| Sales/Marketing | <input type="checkbox"/> | 4. <input type="checkbox"/> |
| Clerical/Service Worker | <input type="checkbox"/> | 5. <input type="checkbox"/> |
| Tradesman/Machine Operator/Laborer ... | <input type="checkbox"/> | 6. <input type="checkbox"/> |

19. Are you or your spouse:

- | | | |
|-------------------------------------|--------------------------|-----------------------------|
| A Homemaker? | <input type="checkbox"/> | 1. <input type="checkbox"/> |
| Retired? | <input type="checkbox"/> | 2. <input type="checkbox"/> |
| A Student? | <input type="checkbox"/> | 3. <input type="checkbox"/> |
| Self Employed/Business Owner? | <input type="checkbox"/> | 4. <input type="checkbox"/> |
| Working from a Home Office? | <input type="checkbox"/> | 5. <input type="checkbox"/> |
| In the Military? | <input type="checkbox"/> | 6. <input type="checkbox"/> |
| A Veteran? | <input type="checkbox"/> | 7. <input type="checkbox"/> |

20. Which group describes your annual family income?

- | | |
|------------------------------------------------|--------------------------------------------------|
| 01. <input type="checkbox"/> Under \$15,000 | 08. <input type="checkbox"/> \$75,000-\$99,999 |
| 02. <input type="checkbox"/> \$15,000-\$19,999 | 09. <input type="checkbox"/> \$100,000-\$124,999 |
| 03. <input type="checkbox"/> \$20,000-\$29,999 | 10. <input type="checkbox"/> \$125,000-\$149,999 |
| 04. <input type="checkbox"/> \$30,000-\$39,999 | 11. <input type="checkbox"/> \$150,000-\$174,999 |
| 05. <input type="checkbox"/> \$40,000-\$49,999 | 12. <input type="checkbox"/> \$175,000-\$199,999 |
| 06. <input type="checkbox"/> \$50,000-\$59,999 | 13. <input type="checkbox"/> \$200,000-\$249,999 |
| 07. <input type="checkbox"/> \$60,000-\$74,999 | 14. <input type="checkbox"/> \$250,000 & over |

21. Level of education: (check highest level completed)

- 1. Completed High School
- 2. Completed College
- 3. Completed Graduate School

22. Which credit cards do you use regularly?

- 1. American Express, Diners Club
- 2. MasterCard, Visa, Discover
- 3. Department Store, Oil Company, etc.
- 4. Do not use credit cards

23. For your primary residence, do you:

- 1. Own? 2. Rent?

24. How recently did you move into your current residence?

- 1. Within 30 days 4. 7 to 12 months ago
- 2. Within 1 - 3 months 5. Have not moved in the last 12 months
- 3. Within 4 - 6 months

25. Which of the following do you plan to do within the next 6 or 12 months?

- | | |
|--------------------------------|------------------------------------------------------|
| 1-6 Months | 7-12 Months |
| Buy/Lease a New Vehicle | <input type="checkbox"/> 1. <input type="checkbox"/> |
| Buy/Lease a Used Vehicle | <input type="checkbox"/> 2. <input type="checkbox"/> |

26. Please check all that apply to your household.

01. Shop by Catalog/Mail
02. Shop via the Internet
03. Member of Frequent Flyer Program
04. Donate to Charitable Causes
05. Own a Compact Disc Player
06. Have a Dog
07. Have a Cat
08. Own a Wireless/Cellular Phone
09. Subscribe to an Online/Internet Service
10. Speak Spanish
11. Own an Apple/Macintosh Computer
12. Own a CD-ROM Drive

27. To help us understand our customers' lifestyles, please indicate the interests and activities in which *you or your spouse* enjoy participating on a *regular basis*.

01. Bicycling
02. Golf
03. Physical Fitness/Exercise
04. Running/Jogging
05. Snow Skiing
06. Tennis
07. Camping/Hiking
08. Fishing
09. Hunting/Shooting
10. Powerboating
11. Sailing
12. Grandchildren
13. Needlework/Knitting
14. Sewing
15. Flower Gardening
16. Vegetable Gardening
17. Crafts
18. Buy Prerecorded Videos
19. Automotive Work
20. Electronics
21. Home Workshop/Do-It-Yourself
22. Recreation Vehicles (RVs)
23. Listen to Records/Tapes/CDs
24. Avid Book Reading
25. Bible/Devotional Reading
26. Health/Natural Foods
27. Photography
28. Cultural/Arts Events
29. Fashion Clothing
30. Art/Antique Collecting
31. Foreign Travel
32. Cruise Ship Vacations
33. Travel in USA
34. Gourmet Cooking/Fine Foods
35. Wines
36. Stamp/Coin Collecting
37. Collectibles
38. Our Nation's Heritage
39. Real Estate Investments
40. Stocks/Bond Investments
41. Contests/Sweepstakes
42. Casino Gambling
43. Science Fiction
44. Wildlife/Environmental Issues
45. Dieting/Weight Control
46. Science/New Technology
47. Self-Improvement
48. Walking for Health
49. Watching Sports on TV
50. Home Video Recording
51. Moneymaking Opportunities

28. Using the numbers in the above list, please indicate your 3 most important activities:

Thanks for taking the time to fill out this questionnaire. Your answers will be used for market research studies and reports. They will also allow you to receive important mailings and special offers from a number of fine companies whose products and services relate directly to the specific interests, hobbies, and other information indicated above. Through this selective program, you will be able to obtain more information about activities in which you are involved and less about those in which you are not. Please check here if, for some reason, you would prefer *not* to participate in this opportunity.

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540-0026 (A)

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